

Application No. 09/641,654

Docket No. 35-0017

**BEST AVAILABLE COPY**AMENDMENTS TO THE CLAIMS:

1 (Currently Amended): In a satellite communication system comprising at least a first satellite arranged to receive first data from a first source and second data from a second source displaced from the first source, to receive control data and to transmit the first data and the second data, apparatus for processing the first and second data comprising in combination:

an earth processing center arranged to process the first data and second data;

a wide band terrestrial network arranged to transmit the first and second data to the processing center;

a first receptor terminal arranged to receive the first data from the satellite and to place the first data on the network for transmission to the processing center; and

a second receptor terminal arranged to receive at least the second data from the satellite and to place at least the second data on the network for transmission to the processing center.

2 (Currently Amended): Apparatus, as claimed in claim 1, wherein the satellite comprises a memory for storing the first and second data to provide multiple opportunities for data delivery.

3 (Original): Apparatus, as claimed in claim 1, wherein the first data is received by the satellite at a first time and the second data is received by the satellite at a second time later than the first time.

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4 (Original): Apparatus, as claimed in claim 3, wherein the satellite transmits the first data at a third time occurring after the first time and wherein the satellite transmits the second data at a fourth time occurring after the second time.

5 (Currently Amended): Apparatus, as claimed in claim 1, wherein the satellite transmits the first data to the first receptor terminal in the event the first receptor terminal is prepared and positioned to receive the first data and wherein the satellite transmits the second data to the second receptor terminal in the event the second receptor terminal is prepared and positioned to receive the second data.

6 (Original): Apparatus, as claimed in claim 1, wherein the satellite transmits the first data and second data to the second receptor in the event the first receptor terminal is unprepared to receive the first data and the second receptor terminal is prepared to receive the first data and second data.

7 (Original): Apparatus, as claimed in claim 1, wherein the second receptor terminal is arranged to receive the first data and to place the first data on the network for transmission to the processing center in the event the first data is not received by the first receptor terminal.

8 (Original): Apparatus, as claimed in claim 1, wherein the satellite comprises a sensor arranged to receive the first data and second data.

9 (Currently Amended): Apparatus, as claimed in claim 1, wherein the system comprises a satellite operation center connected to the first receptor terminal and second receptor terminal by the network, the satellite operation center being arranged to transmit the control data to the satellite.

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10 (Currently Amended): Apparatus, as claimed in claim 9, wherein the satellite operation center is arranged to signal the satellite to retransmit the first data to the first receptor terminal in the event that the processing center detects a deficiency in the first data.

11 (Currently Amended): Apparatus, as claimed in claim 9, wherein the satellite operation center is arranged to signal the satellite to retransmit the first data to the second receptor terminal in the event that the processing center detects a deficiency in the first data and the satellite is out of range of the first receptor terminal.

12 (Original): Apparatus, as claimed in claim 1, wherein the system comprises a second satellite arranged to receive third data from a third source and fourth data from a fourth source displaced from the third source, to receive control data and to transmit the third data and the fourth data, wherein the system comprises at least a third receptor terminal arranged to receive the third and fourth data and to place the third and fourth data on the network for transmission to the processing center and wherein the processing center comprises a first computer arranged to process the first and second data and a second computer arranged to process the third and fourth data.

13 (Original): Apparatus, as claimed in claim 1, wherein the network comprises an optical network.

14 (Currently Amended): In a satellite communication system comprising at least a first satellite arranged to receive first data from a first source and second data from a second source displaced from the first source, to receive control data and to transmit the first data and the second data to the earth, a method of processing the first and second data comprising in combination:

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receiving the first data at the earth from the satellite;

transmitting the first data ~~adjacent the earth for~~ over a wide band network to a terrestrial processing center;

receiving at least the second data at the earth from the satellite;

transmitting at least the second data ~~adjacent the earth for~~ over the wide band network to the terrestrial processing center; and

processing the first data and second data ~~adjacent the earth~~ in the terrestrial processing center.

15 (Currently Amended): A method, as claimed in claim 14, and further comprising storing the first and second data on the satellite, to provide multiple opportunities for data delivery.

16 (Original): A method, as claimed in claim 14, and further comprising receiving the first data at the satellite at a first time and receiving the second data at the satellite at a second time later than the first time.

17 (Original): A method, as claimed in claim 16, and further comprising transmitting the first data from the satellite at a third time occurring after the first time and transmitting the second data from the satellite at a fourth time occurring after the second time.

18 (Currently Amended): A method, as claimed in claim 14, and further comprising transmitting the first data from the satellite to a first location on the earth in the event the first location is prepared and positioned to receive the first data and transmitting the second data from the satellite to a second location on the earth in the event the second location is prepared and positioned to receive the second data.

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19 (Original): A method, as claimed in claim 14, and further comprising transmitting the first data and second data to a second location on the earth in the event that a first location on the earth is unprepared to receive the first data and the second location is prepared to receive the first data and second data.

20 (Currently Amended): A method, as claimed in claim 14, and further comprising signaling the satellite to retransmit the first data to a first location on the earth in the event that the processing step detects a deficiency in the first data.

21 (Currently Amended): A method, as claimed in claim 20, and further comprising signaling the satellite to retransmit the first data to a second location on the earth in the event that the processing step detects a deficiency in the first data and the satellite is out of range of the first location.

22 (Currently Amended): A method, as claimed in claim 14, wherein the system comprises a second satellite arranged to receive third data from a third source and fourth data from a fourth source displaced from the third source, to receive control data and to transmit the third data and the fourth data to the earth, and wherein the method further comprises receiving the third and fourth data, wide band transmitting the third and fourth data for to the terrestrial processing center, and wherein the processing step comprises processing the first and second data with a first operating system and processing the third and fourth data with a second operating system.

23 (Cancelled)

24 (Currently Amended): A method, as claimed in claim 14, wherein each of the transmitting steps comprises optical transmitting.

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25 (Previously Presented): A satellite data collection and distribution system, comprising:

at least one earth-orbiting satellite having at least one data collection instrument, a memory for storing collected data and a transmitter for broadcasting the collected data toward the earth on a substantially continuous basis;

a plurality of unmanned, receive-only receptor terminals positioned at selected locations on or near the earth's surface to receive data signals from the satellite;

a processing and control center for processing data collected by the satellite and for transmitting control signals to the satellite; and

a wideband network connecting the receptor terminals and the processing and control center, wherein each of the receptor terminals is located in close proximity to a point of access to the wideband network;

wherein the receptor terminals are positioned to provide near-global coverage of the earth, and data signals received at the receptor terminals are forwarded to the processing and control center over the wideband network with minimal delay and on a substantially continuous basis.

26 (Previously Presented): A satellite data collection and distribution system as defined in claim 25, wherein the satellite further comprises:

means for storing a copy of a global coverage map maintained by the processing and control center, the coverage map indicating the positions of the receptor terminals; and

means for retransmitting data that could not be successfully transmitted because of a gap in global coverage, as determined from the coverage map.

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27 (Previously Presented): A satellite data collection and distribution system as defined in claim 26, wherein the means for retransmitting data comprises:

means for retrieving from memory the data to be retransmitted;

a multiplexer for coupling the retrieved data to the transmitter, interleaved with the collected data being broadcast on a substantially continuous basis; and

means for timing the retransmission of the retrieved data to ensure reception by at least one of the receptor terminals, based on the coverage map.

28 (Previously Presented): A satellite data collection and distribution system as defined in claim 26, wherein the satellite further comprises:

means for retransmitting data on receipt of a command from the processing and control center, wherein data received at the processing and control center with detected errors can be retransmitted from the satellite.

29 (Previously Presented): A satellite data collection and distribution system as defined in claim 25, wherein:

the processing and control center includes means for maintaining a global coverage map defining the coverage provided by the receptor terminals and means for maintaining a copy of the coverage map on the satellite;

wherein the coverage map is automatically adjusted to accommodate both newly added and inoperative receptor terminals, and wherein the satellite uses the coverage map to anticipate coverage gaps and take appropriate action to retransmit data that would otherwise be lost.

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30 (Previously Presented): A satellite data collection and distribution system as defined in claim 29, wherein the at least one satellite is a plurality of similarly equipped satellites.

31 (Previously Presented): A method for collecting and distributing terrestrial data, the method comprising the steps of:

collecting data from at least one sensor in at least one earth-orbiting satellite;  
broadcasting the collected data on a substantially continuous basis;  
simultaneously with the broadcasting step, storing the collected data in a memory on the satellite;

receiving the broadcast data in a succession of unmanned, receive-only receptors positioned at selected locations on or near the earth's surface;

forwarding the received data through a wideband network connecting the receptor terminals to a processing and control center, wherein each of the receptor terminals is located in close proximity to a point of access to the wideband network; and  
processing the data in the processing and control center;

and wherein the receptor terminals are positioned to provide near-global coverage of the earth, and data signals received at the receptor terminals are forwarded to the processing and control center over the wideband network with minimal delay and on a substantially continuous basis.

32 (Previously Presented): A method as defined in claim 31, and further comprising:



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storing on the satellite a copy of a global coverage map maintained by the processing and control center, the coverage map indicating the positions of the receptor terminals; and

retransmitting stored data that could not be successfully transmitted because of a gap in global coverage, as determined from the coverage map.

33 (Previously Presented): A method as defined in claim 32, wherein the retransmitting step comprises:

retrieving from memory the data to be retransmitted;

multiplexing the received data with currently collected data, for broadcast from the satellite on a substantially continuous basis; and

timing the retransmission of the retrieved data to ensure reception by at least one of the receptor terminals, based on the coverage map.

34 (Previously Presented): A method as defined in claim 32, and further comprising:

retransmitting stored data on receipt of a command from the processing and control center, wherein data received at the processing and control center with detected errors can be retransmitted from the satellite.

35 (Previously Presented): A method as defined in claim 31, and further comprising:

maintaining in the processing and control center a global coverage map defining the coverage provided by the receptor terminals;

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maintaining a copy of the coverage map on the satellite; wherein the maintaining steps include making automatically adjustments to accommodate both newly added and inoperative receptor terminals; and

anticipating, on the satellite, coverage gaps indicated by the coverage map and retransmitting data that would otherwise be lost if transmitted in a coverage gap.

36 (Previously Presented): A method as defined in claim 31, wherein the processing step comprises:

checking for data errors in data received from each receptor;

when one or more errors are detected in data received from a receptor, requesting and receiving retransmission of data from the receptor; and

attempting to correct the one or more detected data errors using the retransmitted data.

37 (Previously Presented): A method as defined in claim 36, and further comprising:

if the one or more detected errors cannot be corrected using the retransmitted data, requesting and receiving retransmission of data from a receptor providing overlapping coverage of the data containing errors; and

attempting to correct the one or more detected errors using data retransmitted by the receptor providing overlapping coverage.

38 (Previously Presented): A method as defined in claim 37, and further comprising:

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if the one or more detected errors cannot be corrected using data retransmitted by the receptor providing overlapping coverage, requesting the satellite to mark the data as unread and to retransmit the data at its next opportunity;

retransmitting the data from the satellite; and

forwarding the data retransmitted from the satellite, for correction of the one or more errors at the processing and control center.

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